

WHAT IS CLAIMED IS:

1. In a buoyant vessel (100) floating in a sea and comprising a hull (102) having a plurality of watertight compartments for ballasting said vessel, the improvement comprising,
a plurality of caissons (54) disposed within said hull, each of said plurality of watertight compartments having a lower portion fluidly coupled to a unique one of said plurality of caissons, each of said plurality of caissons extending generally vertically from said coupled lower portion of said compartment to an upper portion of said hull and designed and arranged for receiving a submersible pump (111, 121, 123).
2. The vessel of claim 1 further comprising,
a vent line (58) fluidly coupled between one of said plurality of watertight compartments and a said unique caisson.
3. The vessel of claim 1 further comprising,
a manifold system (92) fluidly coupled to a source of ballast water (90) via a first isolation valve (91), fluidly coupled to a first submersible pump (121) disposed in one of said plurality of caissons (54) via a second isolation valve (107) and a first coupling (127), fluidly coupled to said plurality of caissons (54) via a third isolation valve (105) and a second coupling (114), and fluidly coupled to an overboard discharge pipe (94) via a fourth isolation valve (95).
4. The vessel of claim 3 further comprising,
an external caisson (56) disposed external to said hull (102) and in fluid communication with the sea, wherein
said manifold system (92) is designed and arranged for temporary fluid coupling to a second submersible pump (111) disposed in said external caisson (56).
5. The vessel of claim 1 wherein,

at least one of said plurality of caissons (54) is fluidly coupled to a void (52) by a branch pipe (51) having an isolation valve (53).

6. The vessel of claim 1 wherein,

at least two of said plurality of caissons (54) are disposed within a housing caisson (52).

7. A ballasting/de-ballasting system for a tension leg platform (100) having a hull (102) and at least one column (1, 2, 3, 4) attached thereto and extending vertically upwards, the system comprising,

at least two ballast arrangements, each said ballast arrangement comprising a watertight compartment (X1, X2, X3, 8) and a caisson (10, 20, 30, 80) which is in non-isolatable fluid communication with said watertight compartment and extends generally vertically upward from said watertight compartment into one of said at least one column, and a submersible pump (121, 123) designed and arranged for use within said caisson.

8. The system of claim 7 further comprising,

a manifold system (92) designed and arranged for isolatable fluid coupling to a source of ballast water (90), isolatable temporary fluid coupling to said submersible pump, isolatable temporary fluid coupling to said caisson, and isolatable fluid coupling to an overboard discharge pipe (94).

9. A method for ballasting a vessel comprising the steps of,

coupling a source of ballast water with a removable conduit to a first caisson which is in fluid communication with a first watertight compartment,

filling said first watertight compartment with water from said source of water,

decoupling said source of ballast water from said first caisson,

coupling said source of ballast water with said removable conduit to a second caisson which is in fluid communication with a second watertight compartment, and

filling said second watertight compartment with water from said source of water.

10. The method of claim 9 further comprising the steps of,

lowering a submersible pump into a third caisson in fluid communication with the sea, wherein discharge of water from said submersible pump provides said source of ballast water.

11. The method of claim 9 wherein,

said source of ballast water is provided from a firemain.

12. A method for de-ballasting a vessel comprising the steps of,

lowering a first submersible pump into a first caisson which is in fluid communication with a first watertight compartment,

coupling a discharge of said first submersible pump with a first removable conduit to an overboard discharge

pumping water with said submersible pump from said first watertight compartment overboard,

lowering a second submersible pump into a second caisson which is in fluid communication with a second watertight compartment,

coupling discharge of said second submersible pump with a second removable conduit to said overboard discharge, and

pumping water with said second submersible pump from said second watertight compartment overboard.

13. The method of claim 12 further comprising the steps of,

raising said first submersible pump from said first caisson, and

lowering said first submersible pump into said second caisson, wherein said first submersible pump is said second submersible pump.

14. The method of claim 13 wherein,

said first removable conduit is said second removable conduit.

15. A buoyant vessel (100) floating in a sea comprising,
a hull (102),
a plurality of watertight compartments, and
a plurality of caissons (54) disposed within said hull, each of said plurality of watertight compartments having a lower portion fluidly coupled (50) to one of said plurality of caissons, each of said plurality of caissons extending generally vertically from a lower portion of said hull to an upper portion of said hull, each of said plurality of caissons designed and arranged to receive a suction line with a first end disposed near said lower portion of said hull and a second end coupled to a pump disposed in said upper portion of said hull.

16. The vessel of claim 15 wherein said suction line comprises a check valve disposed near said lower portion of said hull.